

DETAILED ACTION

Applicant's filing of an Appeal Brief on 2/21/2008 is acknowledged and entered. However, upon further consideration and because of applicant's arguments, prosecution on the merits is being reopened with the issuing of the newly applied Non-Final office action as stated below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner has approved of reopening prosecution by signing below.

/Marjorie Moran/
Supervisory Patent Examiner, Art Unit 1631

Claims 11-25 and 28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventive group, there being no allowable

generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/19/2006.

Claims 1-10 and 26-27 are the current claims hereby under examination.

Response to Arguments

Applicant's arguments in the Appeal Brief filed 2/21/2008 are considered moot in view of the new grounds of rejections applied in this Non-Final office action as stated below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 and 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the array information, which is obtained from an array, is obtained from the binding of a labeled target to an array feature as discussed at paragraphs [0058] – [0060], [0074], [0078], [0096]. Furthermore, in the examples 1 and 2, information is obtained from array features producing a signal or not producing a signal. Therefore, claim 1 recites information for decoding encoded array information obtained from an array, but is missing the essential element of obtaining encoded array information specifically from the array features and their binding to targets.

Claim 6 comprises the word "indicates," which has been deemed as vague and indefinite. It is unclear as to what exactly the word "indicates" refers and what its exact relationship is between the information for decoding and an executable program for decoding. For example, it appears that information for decoding may indicate an executable program by simply comprising an address in memory for said executable program. The metes and bounds of the word "indicates" is unclear and one of ordinary skill in the art would not immediately recognize its metes and bounds. Clarification via clearer claim wording is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-10 and 26-27 are drawn to a computer readable medium wherein the medium is selected from a specific list and a kit comprising computer-readable medium and instructions. A kit comprising computer readable medium and instructions and computer program product or computer readable medium that embodies a statutory process must include a final resulting step of a physical transformation, or produce a useful, concrete, and tangible result (*State Street Bank & Trust Co. v. Signature Financial Group Inc.* CAFC 47 USPQ2d 1596 (1998), *AT&T Corp. v. Excel Communications Inc.* (CAFC 50 USPQ2d 1447 (1999))). Furthermore, a kit comprising computer readable medium and instructions and a computer readable medium, which recites only "instructions" type of limitations encompasses a program, per se. A

program, per se, is not statutory subject matter. The instant claims do not result in a physical transformation, thus the Examiner must determine if the instant claims include a useful, concrete, and tangible result.

As noted in *State Street Bank & Trust Co. v. Signature Financial Group Inc.* CAFC 47 USPQ2d 1596 (1998) below, the statutory category of the claimed subject matter is not relevant to a determination of whether the claimed subject matter produces a useful, concrete, and tangible result:

The question of whether a claim encompasses statutory subject matter should not focus on *which* of the four categories of subject matter a claim is directed to 9— process, machine, manufacture, or composition of matter—but rather on the essential characteristics of the subject matter, in particular, its practical utility. Section 101 specifies that statutory subject matter must also satisfy the other "conditions and requirements" of Title 35, including novelty, nonobviousness, and adequacy of disclosure and notice. See *In re Warmerdam*, 33 F.3d 1354, 1359, 31 USPQ2d 1754, 1757-58 (Fed. Cir. 1994). For purpose of our analysis, as noted above, claim 1 is directed to a machine programmed with the Hub and Spoke software and admittedly produces a "useful, concrete, and tangible result." *Alappat*, 33 F.3d at 1544, 31 USPQ2d at 1557. This renders it statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss.

In determining if the claimed subject matter produces a useful, concrete, and tangible result, the Examiner must determine each standard individually. For a claim to be "useful," the claim must produce a result that is specific, and substantial. For a claim to be "concrete," the process must have a result that is reproducible. For a claim to be "tangible," the process must produce a real world result. Furthermore, the claim must be limited only to statutory embodiments.

Claims 1-10 and 26-27 do not produce a tangible result. A tangible result requires that the claims must set forth a practical application to produce a real-world result. In the instant claims such as claim 1, the only method step or instructional step is information for decoding encoded array information obtained from an array comprising one or more array information features. It is unclear as to what is done with the information or resulting data of the step. For instance, the resulting data may be seed data for another data manipulation program, wherein the instant scenario the result is clearly not tangible. This rejection could be overcome by amendment of the claims to recite that a result of the step is outputted to a display or to a user, or by including a final resulting step of a physical transformation, if such wording is supported by the instant specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Morris et al (European Patent Application No. EP 0 799 897 A1, published 08 October 2007).

The claims are drawn to a computer-readable medium comprising: information for decoding encoded array information obtained from an array comprising one or more array information features, wherein said computer readable medium is selected from the

group consisting of a data storage means, a memory access means, hard disk drive, an integrated circuit, a floppy disk, magnetic tape, a ROM, a CD-ROM, a hard-drive ROM, a DVD, a magneto-optical disk, a computer readable card, and a RAM.

Regarding claims 1-2, Morris et al at Fig. 5, teach encoded information comprising one or more array information features present on said array; namely, the letters "DNA TAGS" are spelled out on the array using immobilized oligonucleotides bound to labeled control oligonucleotides to form the letters (page 5, lines 15-25). The additional spots of Figure 5 are the additional features, and are at predetermined (i.e., defined) locations on the array (page 4, lines 54-58). The array information features provide coded, non-biological information about the array after binding to one or more array information targets; namely, the probes forming the letters hybridize to array information targets in the form of control probes (page 5, lines 15-25). The control probes are array information target in accordance with the embodiment described in paragraph [0072] of the specification because they bind to the complementary array information feature. The information is coded because the hybridization forms letters of the English alphabet, as described in paragraph [0078] of the instant specification.

Morris et al. teach claim 6 at page 12, lines 33-40.

Morris et al. teach claims 26-27 at page 5, lines 8-9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (EP O 799897 A1) as applied to claim 1 above, and further in view of Balaban et al. (US P/N 6,229,911).

Morris et al. do not explicitly teach wherein said information for decoding encoded array information comprises a table that contains a list of feature identifiers and a list of probe identifiers corresponding information.

Balaban teaches at Col. 4, lines 4-55 teaches organizing and storing array information, such as features and information for analyzing the array in tables in databases wherein the table indicates that certain features of said array are array information features and that features correspond to particular bit of a code as in claims 3-5.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use tables comprising a list of features and identifiers corresponding to said features. This is because it is a common method step for the researcher to organize information, such as array information, in easy to manage, identify and

accessible ways such as through the use of tables with a reasonable expectation of success. Furthermore, one of ordinary skill in the art would immediately recognize that organizing the data for an array through the use of tables would be a routine skill in the art, which would be performed with a reasonable expectation of success.

Morris et al. do not explicitly teach wherein said information for decoding encoded array information is a file that has a unique identifier that corresponds to a unique identifier of an array as in claim 7.

However, Morris et al. do teach a computer program for performing the method steps of the invention, which implies that a computer program is a file with a unique identifier as it is necessary for location and access purposes for processing instructions.

Balaban et al. teaches at Col. 2, lines 41-65, Col. 4, lines 4-55, Col. 5, lines 3-65, Col. 9, lines 55-67, and col. 10 using identifiers for array chips and layout information, which are electronically stored in chip tables and unique identifiers are used for said array layout information, wherein the information is retrieved for experiments.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to correlate the unique identifier used for a file for storing information for decoding encoded particular array information as used for identifying the array for which the information was obtained. This is because it is common in the art to use unique identifiers and correlate unique identifiers with their associated information such as array layout or file for storing information for analyzing the array information and corresponding the unique identifiers would enhance the data management aspect of an array experiment and better ensure the proper analysis was made on the proper array.

Claims 1 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al (EP 0 799 897 A1) and Balaban et al. (US P/N 6,229,911) as applied to claims 1 and 7 above and further in view of Spaulding et al (U.S. Patent No. 2,886,241, issued 12 May 1959) or in view of Cowlshaw (IEEE Proc. Comput. Digit. Tech., vol. 49, pp. 1-2-104 (2002)).

Morris et al and Balaban et al. do not teach the coded information is binary coded information.

However, Spaulding et al teach the use of binary coded decimal code (column 1, line 18) with the added benefit of being enabling the use of a simpler apparatus (column 1, line 43).

Further, Cowlshaw teaches the use of binary coded decimal code as a widely used encoding (page 102, column 1, paragraph 1 lines 1-2) with the added benefit of simplified decimal arithmetic, simplified shifting, and trivial conversions to or from characters (page 102, column 1, paragraph 1 lines 1-2). Thus, Spaulding et al and Cowlshaw et al each teach the known technique of using of binary coded decimal code.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the coded array of Morris et al with the binary coded decimal code as taught by Spaulding et al or Cowlshaw with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an addressable array having the added advantage of being a simplified apparatus as explicitly taught by Spaulding et al (column 1, line 43) or said modification would have

resulted in an addressable array having the added advantage of using simplified arithmetic and shifting and to make conversions to or from characters easier as explicitly taught by Cowlshaw (page 102, column 1, paragraph 1 lines 1-2). In addition, it would have been obvious to the ordinary artisan that the known technique of using the binary codes of Spaulding et al or Cowlshaw et al could have been applied to the coded array of Morris et al with predictable results because the binary codes of Spaulding et al or Cowlshaw et al predictably result in codes useful for displaying information.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (EP 0 799 897 A1)) as applied to claim 1 above, and further in view of Hu et al (US PGPUB # 2004/0248287) with an effective filing date of March 28th, 2003.

The claim is drawn to a computer-readable medium of claim 1 with the use of multi-arrays.

Morris et al. disclose the computer-readable medium of claim 1, but do not disclose the use of multi-arrays.

Hu et al. disclose multi-arrays and their use (abstract).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the computer-readable medium of Morris et al. to use multi-arrays. One of ordinary skill in the art would have been motivated to do this because, as suggested by Hu et al., multi-arrays require less sample than traditional arrays (paragraph 10, lines 1-4). Hence, by using a multi-array, one could carry out the

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same assays without having to extract as much sample or carry out more assays for a given sample amount.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Sims, whose telephone number is (571)-272-7540.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marjorie Moran can be reached via telephone (571)-272-0720.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

// Jason Sims //

/Michael Borin, Ph.D./
Primary Examiner, Art Unit 1631